

client assistance memo

Using Duct Wrap or Self-Enclosed Grease Duct Systems to Construct Fire-Resistive Shaft Enclosure Assemblies

June 2000

What are “duct wrap” and “self-enclosed grease duct systems”?

Duct wrap is a generic term for foil encapsulated ceramic fiber blankets installed around ductwork to create a fire-rated assembly. Listed duct wraps are products that have been tested and certified by independent testing laboratories to provide a specified period of fire resistance and structural integrity. Underwriters Laboratories lists such products under the “YYET” listing classification code for grease duct enclosures and the “HNLJ” code for ventilation duct enclosures.

The International Conference of Building Officials Evaluation Service (ICBO-ES) issues “Evaluation Reports” on products tested according to ICBO-ES “acceptance criteria.” The ICBO-ES acceptance criteria for duct wrap products are “Acceptance Criteria for Grease Duct Enclosures” and “Acceptance Criteria for Grease Ducts, Flexible Enclosure Systems, AC101.”

Self-enclosed grease duct systems are products in which an exterior metal skin encloses ceramic fiber insulation and the duct that conveys the Type I commercial kitchen hood exhaust. Listed self-enclosed systems do not yet have a UL listing, but are tested according to the ICBO-ES Acceptance Criteria for Grease Ducts, Flexible Enclosure Systems, AC101.

Does DPD allow use of listed duct-wrap and self-enclosed grease duct systems as an alternate to typical gypsum wallboard fire-resistive shaft construction?

Yes, but not in stair enclosures, exit passageways, or elevator shafts. Listed duct wrap and self-enclosed grease duct systems have been approved by UL and ICBO-ES as alternatives to typical shaft enclosure construction (one or two layers of 5/8-inch Type-X gypsum wallboard over framing), provided the products are installed according to manufacturers’ specifications.

Following are answers to frequently asked questions regarding fire-resistive enclosure requirements for commercial kitchen hood ductwork.

Where does the Seattle Mechanical Code require ducts serving Type I and II commercial kitchen hoods to be enclosed?

Section 507.6 of the 1997 Seattle Mechanical Code (SMC) requires that a duct serving a Type I commercial kitchen hood that penetrates a nonrated or fire-rated ceiling, wall, or floor shall be enclosed in a duct enclosure from the point of penetration to the outside air. (Type I hoods are used for collecting and removing grease and smoke.)

Section 507.6 also requires that a duct serving a Type II commercial kitchen hood that penetrates a fire-rated ceiling, floor, or wall shall be enclosed in a duct enclosure from the point of penetration to the outside air. (Type II hoods are used for collecting and removing steam, vapor, heat, or odors)

In both cases, duct enclosures must be sealed around the point of penetration and vented to the exterior through weather-protected openings.

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Is there a difference between duct enclosures and shaft enclosures?

Section 507.6 of the 1997 SMC requires duct enclosures serving Type I or II commercial kitchen hoods to be constructed as Section 711 of the 1997 Seattle Building Code (SBC) requires shaft enclosures to be constructed. Thus, duct enclosures and shaft enclosures are the same, except the term duct enclosure specifically refers to shaft enclosures around Type I or II commercial kitchen hood ducts.

Are duct enclosures serving Type I and II commercial kitchen hoods required to be fire-rated?

Seattle Mechanical Code Section 507.6 states that duct enclosures shall be of at least one-hour fire resistive construction, and shall be of two-hour fire-resistive construction in Types I and II fire resistive buildings. Seattle Building Code Section 711 and Table 6-A provide the same the one- and two-hour fire resistive construction requirements for shaft enclosures as set forth in SMC Section 507.6 for duct enclosures. As noted above, listed duct wrap or self-enclosed grease duct systems may be used to create one- or two-hour fire resistive assemblies.

For More Information

DPD provides a technical backup service to answer explicit Building Code and Energy/Mechanical Code questions. Technical backup plans examiners are available to walk-in customers on a first-come, first-served basis during normal office hours at the DPD Applicant Services Center, located on the 20th floor of Seattle Municipal Tower at 700 Fifth Avenue in downtown Seattle. Technical backup is also available by phone from 1-4:15 p.m. daily:

- Building Code—(206) 684-4630
- Energy/Mechanical Code—(206) 684-7846

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